Space Weather Forecast

Issued on Wednesday, 13 April 2022 at 13:44 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Increasing Chance of significant Geomagnetic Storms on Day 2 (14 Apr).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low with only three weak sunspots in the northeast quadrant of the Sun. There were a small number of Common-class flares. No Earth-directed CMEs were observed in the last 24 hours, though the CME which left the Sun on the 9th April arrived at Earth around 13/0200 UTC.

Solar Wind / Geomagnetic Activity: The solar wind has been at slightly elevated levels, with a brief increase to elevated levels at first and then following the arrival of the CME which left the Sun on 09 April. Total magnetic field strength was mainly weak, before increasing to moderate levels following the CME arrival, but the north-south component only varied weakly. Geomagnetic activity was Unsettled to Active (Kp3-4) with one Quiet (Kp1) interval late in the period.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to be mainly Very Low over the next four days, with only three benign sunspots on the visible disc.

Solar Wind / Geomagnetic Activity: The continued effects of the CME arrival may persist on day 1 (13th). A further CME arrival is then expected on 14th April. This could increase the solar wind to around 500 km/s. A fast solar wind, giving elevated speeds is then likely to begin affecting the Earth on 16th April. G1 or G2 Minor or Moderate Storms are likely on day 2 (14th), due to the CME arrival. There is also a very slight chance of a G3/Strong storm on day 2. Geomagnetic activity is then likely to reduce later in the period, with a slight chance of further storming on day 4, due to the start of the fast solar wind from a coronal hole.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	40	70	40	20
Strong	G3	No	1	10	1	1
Severe	G4	No	1	2	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	1	1	1	1
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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